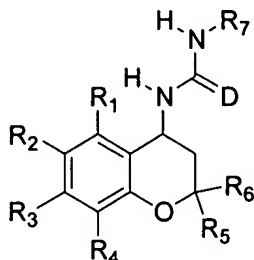


IN THE CLAIMS

Claim 1 (original): Benzopyran derivatives of the general formula



(I)

wherein :

D represents S or O;

R₁, R₂, R₃ and R₄ are independently hydrogen, halogen, C₁₋₆-alkyl, C₃₋₈-cycloalkyl, hydroxy, C₁₋₆-alkoxy, C₁₋₆-alkoxy-C₁₋₆-alkyl, nitro, amino, cyano, cyanomethyl, perhalomethyl, C₁₋₆-monoalkyl- or dialkylamino, sulfamoyl, C₁₋₆-alkylthio, C₁₋₆-alkylsulfonyl, C₁₋₆-alkylsulfinyl, formyl, C₁₋₆-alkylcarbonylamino, R₈arylthio, R₈arylsulfinyl, R₈arylsulfonyl, C₁₋₆-alkoxycarbonyl, C₁₋₆-alkoxycarbonyl-C₁₋₆-alkyl, carbamoyl, carbamoylmethyl, C₁₋₆-monoalkyl- or dialkylaminocarbonyl, C₁₋₆-monoalkyl- or dialkylaminothiocarbonyl, ureido, C₁₋₆-monoalkyl- or dialkylaminocarbonylamino, thioureido, C₁₋₆-monoalkyl- or dialkylaminothiocarbonylamino, C₁₋₆-monoalkyl- or dialkylaminosulfonyl, carboxy, carboxy-C₁₋₆-alkyl, acyl, R₈aryl, R₈aryl-C₁₋₆-alkyl, R₈aryloxy;

R₅ and R₆ are each independently hydrogen, C₁₋₆-alkyl or, R₅ and R₆ taken together with the carbon atom to which they are attached form a 3- to 6- membered carbocyclic ring;

R₇ is 2-, 3- or 4-pyridyl optionally mono- or polysubstituted by R₁
or

R₇ is 2- or 3-thienyl optionally mono- or polysubstituted
substituted by R₁ or

R₇ is phenyl mono- or polysubstituted by R₁ with the exception of R₇
representing C₆H₅;

R₈ is hydrogen, halogen, C₁₋₆-alkyl, C₃₋₈-cycloalkyl, hydroxy, C₁₋₆-
alkoxy, nitro, amino, cyano, cyanomethyl, perhalomethyl;

or a salt thereof with a pharmaceutically acceptable acid or base,
or any optical isomer or mixture of optical isomers, including a
racemic mixture or any polymorphic and tautomeric form.

Claim 2 (currently amended): A The benzopyran derivative according
to claim 1 wherein D represents S.

Claim 3 (currently amended): A The benzopyran derivative according
to claim 1 ~~or~~ 2 selected from :

R/S-4-(3-Chlorophenylaminothiocarbonylamino)-3,4-dihydro-2,2-
dimethyl-6-fluoro-2H-1-benzopyran,

R/S-6-Chloro-4-(3-chlorophenylaminothiocarbonylamino)-3,4-dihydro-
2,2-dimethyl-2H-1-benzopyran,

R/S-4-(4-Chlorophenylaminothiocarbonylamino)-3,4-dihydro-2,2-
dimethyl-6-fluoro-2H-1-benzopyran,

R/S-6-Chloro-4-(4-chlorophenylaminothiocarbonylamino)-3,4-dihydro-
2,2-dimethyl-2H-1-benzopyran,

R/S-6-Bromo-4-(4-chlorophenylaminothiocarbonylamino)-3,4-dihydro-
2,2-dimethyl-2H-1-benzopyran,

R/S-4-(3-Cyanophenylaminothiocarbonylamino)-3,4-dihydro-2,2-
dimethyl-6-fluoro-2H-1-benzopyran,

R/S-6-Chloro-4-(3-cyanophenylaminothiocarbonylamino)-3,4-dihydro-

2,2-dimethyl-2*H*-1-benzopyran,
 R/S-6-Bromo-4-(3-cyanophenylaminothiocarbonylamino)-3,4-dihydro-
 2,2-dimethyl-2*H*-1-benzopyran,
 R/S-4-(4-Cyanophenylaminothiocarbonylamino)-3,4-dihydro-2,2-
 dimethyl-6-fluoro-2*H*-1-benzopyran,
 R/S-6-Chloro-4-(4-cyanophenylaminothiocarbonylamino)-3,4-dihydro-
 2,2-dimethyl-2*H*-1-benzopyran,
 R/S-6-Bromo-4-(4-cyanophenylaminothiocarbonylamino)-3,4-dihydro-
 2,2-dimethyl-2*H*-1-benzopyran,
 R/S-6-Chloro-3,4-dihydro-2,2-dimethyl-4-(3-
 nitrophenylaminothiocarbonylamino)-2*H*-1-benzopyran,
 R/S-6-Bromo-3,4-dihydro-2,2-dimethyl-4-(3-
 nitrophenylaminothiocarbonylamino)-2*H*-1-benzopyran,
 R/S-3,4-Dihydro-2,2-dimethyl-6-fluoro-4-(4-
 nitrophenylaminothiocarbonylamino)-2*H*-1-benzopyran,
 R/S-6-Chloro-3,4-dihydro-2,2-dimethyl-4-(4-
 nitrophenylaminothiocarbonylamino)-2*H*-1-benzopyran,
 R/S-4-(3-Chlorophenylaminothiocarbonylamino)-3,4-dihydro-2,2-
 dimethyl-6-fluoro-2*H*-1-benzopyran,
 R/S-6-Chloro-4-(3-chlorophenylaminothiocarbonylamino)-3,4-dihydro-
 2,2-dimethyl-2*H*-1-benzopyran,
 R/S-4-(4-Chlorophenylaminothiocarbonylamino)-3,4-dihydro-2,2-
 dimethyl-6-fluoro-2*H*-1-benzopyran,
 R/S-6-Chloro-4-(4-chlorophenylaminothiocarbonylamino)-3,4-dihydro-
 2,2-dimethyl-2*H*-1-benzopyran,
 R/S-6-Bromo-4-(4-chlorophenylaminothiocarbonylamino)-3,4-dihydro-
 2,2-dimethyl-2*H*-1-benzopyran,
 R/S-4-(3-Cyanophenylaminothiocarbonylamino)-3,4-dihydro-2,2-
 dimethyl-6-fluoro-2*H*-1-benzopyran,
 R/S-6-Chloro-4-(3-cyanophenylaminothiocarbonylamino)-3,4-dihydro-
 2,2-dimethyl-2*H*-1-benzopyran,
 R/S-6-Bromo-4-(3-cyanophenylaminothiocarbonylamino)-3,4-dihydro-
 2,2-dimethyl-2*H*-1-benzopyran,

R/S-4-(4-Cyanophenylaminothiocarbonylamino)-3,4-dihydro-2,2-dimethyl-6-fluoro-2*H*-1-benzopyran,
 R/S-6-Chloro-4-(4-cyanophenylaminothiocarbonylamino)-3,4-dihydro-2,2-dimethyl-2*H*-1-benzopyran,
 R/S-6-Bromo-4-(4-cyanophenylaminothiocarbonylamino)-3,4-dihydro-2,2-dimethyl-2*H*-1-benzopyran,
 R/S-6-Chloro-3,4-dihydro-2,2-dimethyl-4-(3-nitrophenylaminothiocarbonylamino)-2*H*-1-benzopyran,
 R/S-6-Bromo-3,4-dihydro-2,2-dimethyl-4-(3-nitrophenylaminothiocarbonylamino)-2*H*-1-benzopyran,
 R/S-3,4-Dihydro-2,2-dimethyl-6-fluoro-4-(4-nitrophenylaminothiocarbonylamino)-2*H*-1-benzopyran,
 R/S-6-Chloro-3,4-dihydro-2,2-dimethyl-4-(4-nitrophenylaminothiocarbonylamino)-2*H*-1-benzopyran,
 R/S-6-Bromo-3,4-dihydro-2,2-dimethyl-4-(4-nitrophenylaminothiocarbonylamino)-2*H*-1-benzopyran,
 R/S-6-Bromo-3,4-dihydro-2,2-dimethyl-4-(4-nitrophenylaminothiocarbonylamino)-2*H*-1-benzopyran,
 R/S-6-Bromo-3,4-dihydro-2,2-dimethyl-4-(3-trifluoromethylphenylaminothiocarbonylamino)-2*H*-1-benzopyran,
 R/S-6-Chloro-3,4-dihydro-2,2-dimethyl-4-(2-methoxyphenylaminocarbonylamino)-2*H*-1-benzopyran,
 R/S-6-Bromo-3,4-dihydro-2,2-dimethyl-4-(2-methoxyphenylaminocarbonylamino)-2*H*-1-benzopyran,
 R/S-3,4-Dihydro-2,2-dimethyl-6-fluoro-4-(3-methoxyphenylaminocarbonylamino)-2*H*-1-benzopyran,
 R/S-6-Chloro-3,4-dihydro-2,2-dimethyl-4-(3-methoxyphenylaminocarbonylamino)-2*H*-1-benzopyran,
 R/S-6-Bromo-3,4-dihydro-2,2-dimethyl-4-(3-methoxyphenylaminocarbonylamino)-2*H*-1-benzopyran,
 R/S-3,4-Dihydro-2,2-dimethyl-6-fluoro-4-(4-methoxyphenylaminocarbonylamino)-2*H*-1-benzopyran,
 R/S-6-Chloro-3,4-dihydro-2,2-dimethyl-4-(4-

methoxyphenylaminocarbonylamino)-2*H*-1-benzopyran,
 R/S-6-Bromo-3,4-dihydro-2,2-dimethyl-4-(4-
 methoxyphenylaminocarbonylamino)-2*H*-1-benzopyran,
 R/S-3,4-Dihydro-2,2-dimethyl-6-fluoro-4-(2-
 methylphenylaminocarbonylamino)-2*H*-1-benzopyran,
 R/S-6-Chloro-3,4-dihydro-2,2-dimethyl-4-(2-
 methylphenylaminocarbonylamino)-2*H*-1-benzopyran,
 R/S-6-Bromo-3,4-dihydro-2,2-dimethyl-4-(2-
 methylphenylaminocarbonylamino)-2*H*-1-benzopyran,
 R/S-3,4-Dihydro-2,2-dimethyl-6-fluoro-4-(3-
 methylphenylaminocarbonylamino)-2*H*-1-benzopyran,
 R/S-6-Chloro-3,4-dihydro-2,2-dimethyl-4-(3-
 methylphenylaminocarbonylamino)-2*H*-1-benzopyran,
 R/S-6-Bromo-3,4-dihydro-2,2-dimethyl-4-(3-
 methylphenylaminocarbonylamino)-2*H*-1-benzopyran,
 R/S-3,4-Dihydro-2,2-dimethyl-6-fluoro-4-(4-
 methylphenylaminocarbonylamino)-2*H*-1-benzopyran,
 R/S-6-Chloro-3,4-dihydro-2,2-dimethyl-4-(4-
 methylphenylaminocarbonylamino)-2*H*-1-benzopyran,
 R/S-6-Bromo-3,4-dihydro-2,2-dimethyl-4-(4-
 methylphenylaminocarbonylamino)-2*H*-1-benzopyran,
 R/S-4-(2-Chlorophenylaminocarbonylamino)-3,4-dihydro-2,2-dimethyl-
 6-fluoro-2*H*-1-benzopyran,
 R/S-6-Chloro-4-(2-chlorophenylaminocarbonylamino)-3,4-dihydro-2,2-
 dimethyl-2*H*-1-benzopyran,
 R/S-6-Bromo-4-(2-chlorophenylaminocarbonylamino)-3,4-dihydro-2,2-
 dimethyl-2*H*-1-benzopyran,
 R/S-4-(3-Chlorophenylaminocarbonylamino)-3,4-dihydro-2,2-dimethyl-
 6-fluoro-2*H*-1-benzopyran,
 R/S-6-Chloro-4-(3-chlorophenylaminocarbonylamino)-3,4-dihydro-2,2-
 dimethyl-2*H*-1-benzopyran,
 R/S-6-Bromo-4-(3-chlorophenylaminocarbonylamino)-3,4-dihydro-2,2-
 dimethyl-2*H*-1-benzopyran,

R/S-4-(4-Chlorophenylaminocarbonylamino)-3,4-dihydro-2,2-dimethyl-6-fluoro-2H-1-benzopyran,

R/S-6-Chloro-4-(4-chlorophenylaminocarbonylamino)-3,4-dihydro-2,2-dimethyl-2H-1-benzopyran,

R/S-6-Bromo-4-(4-chlorophenylaminocarbonylamino)-3,4-dihydro-2,2-dimethyl-2H-1-benzopyran.

Claim 4 (currently amended): ~~Benzopyran~~ The benzopyran derivatives according to claim 1 ~~any one of the preceding claims~~ for use as openers of the K_{ATP}-regulated potassium channels.

Claim 5 (currently amended): A The pharmaceutical composition comprising a benzopyran derivative according to claim 1 ~~any one of the preceding claims~~ or pharmaceutically acceptable salt thereof with a pharmaceutically acceptable acid or base or any optical isomer or mixture of optical isomers, including a racemic mixture or any tautomeric form together with one or more pharmaceutically acceptable carriers or diluents.

Claim 6 (currently amended): A The pharmaceutical composition for use in the treatment of diseases of the endocrinological system such as hyperinsulinaemia and diabetes comprising a benzopyran derivative according to claim 1 ~~any one of the preceding benzopyran derivative claims~~ or a pharmaceutical acceptable salt thereof with a pharmaceutically acceptable acid or base, or any optical isomer or mixture of optical isomers, including a racemic mixture, or any tautomeric form together with a pharmaceutically acceptable carrier or diluent.

Claim 7 (currently amended): The pharmaceutical composition according to claim 5 ~~any one of the claims 5 or 6~~ in the form of an oral dosage unit or parental dosage unit.

Claim 8 (currently amended): A The pharmaceutical composition

according to claim 5 ~~any one of the claims 5 or 6~~ wherein said benzopyran derivative is administered as a dose in a range from about 0.05 to 1000, preferably from about 0.1 to 500 and especially in the range from 50 to 200 mg per day.

Claim 9 (currently amended): A The benzopyran derivative according to claim 1 ~~any one of the preceding benzopyran derivative claims~~ or a pharmaceutically acceptable salt thereof with a pharmaceutically acceptable acid or base, or any optical isomer or mixture of optical isomers, including a racemic mixture, or any tautomeric form for therapeutical use.

Claim 10 (currently amended): A The benzopyran derivative according to claim 1 ~~any one of the preceding benzopyran derivative claims~~ or a pharmaceutically acceptable salt thereof with a pharmaceutically acceptable acid or base, or any optical isomer or mixture of optical isomers, including a racemic mixture, or any tautomeric form for therapeutical use in then treatment of diseases of the endocrinological system, such as hyperinsulinaemia and diabetes.

Claim 11 (currently amended): The use of a benzopyran derivative according to claim 1 ~~any one of the preceding compound claims~~ or a pharmaceutically acceptable salt thereof with a pharmaceutically acceptable acid or base, or any optical isomer or mixture of optical isomers, including a racemic mixture, or any tautomeric form as a medicament.

Claim 12 (currently amended): The use of a benzopyran derivative according to claim 1 ~~any of the preceding compound claims~~ for preparing a medicament.

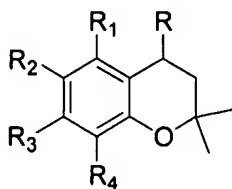
Claim 13 (currently amended): The use of a benzopyran derivative according to claim 1 ~~any one of the preceding benzopyran derivative claims~~ or a pharmaceutically acceptable salt thereof with a

pharmaceutically acceptable acid or base, or any optical isomer or mixture of optical isomers, including a racemic mixture, or any tautomeric form for the preparation of a medicament for the treatment of diseases of the endocrinological system, such as hyperinsulinaemia and diabetes.

Claim 14 (currently amended): A The method of treating diseases of the endocrinological system, such as hyperinsulinaemia and diabetes in a subject in need thereof comprising administering an effective amount of a benzopyran derivative according to claim 1 ~~any one of the preceding benzopyran derivative claims to said subject.~~

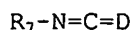
Claim 15 (currently amended): A The process for the manufacture of a medicament, particular to be ~~use~~ used in the treatment of diseases of the endocrinological system, such as hyperinsulinaemia and diabetes which process comprising bringing a compound of formula (I) according to claim 1 ~~any one of the preceding compound claims 1~~ or a pharmaceutically acceptable salt thereof into a galenic dosage form.

Claim 16 (original): A method of preparing a benzopyran derivative of formula (I) which comprises :
- reacting a compound of formula (II)



(II)

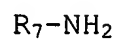
wherein R represents NH₂ and R₁, R₂, R₃ and R₄ are defined as for formula (I) with an isothiocyanate of formula (III)



(III)

wherein D represents S or O and R₇ is defined as for formula (I), to form a benzopyran derivative of formula (I); or

- reacting a compound of formula (II) wherein R represents -N=C=S and R₁, R₂, R₃ and R₄ are defined as for formula (I) with an amine of formula (IV)



(IV)

wherein R₇ is defined as for formula (I), to form a benzopyran derivative of formula (I).